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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,558	06/29/2001	Moo Jong Lim	8733.461.00	5058

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EXAMINER
CHOI, JACOB Y

ART UNIT	PAPER NUMBER
2875	

DATE MAILED: 09/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/893,558	LIM, MOO JONG	
	Examiner	Art Unit	
	Jacob Y Choi	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. (USPN 6,404,131) in view of Satoh (USPN 6,315,440).

Regarding claims 1, 5, 9 & 10 Kawano et al. discloses a light guiding plate (22), a reflection plate (23), and a diffusion plate (12), the backlight unit using LED (2a) as a back light lamp following a field sequence, wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamp unit (Figure 18, 19), wherein the unit chips are turned on/of according to a sequence of a R chip, a G chip, and a B chip in each of the rows. Satoh teachers that it is known to modify a backlight liquid crystal display with LED chips containing R, G, and B colors as a set. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify backlight of Kawano et al. to utilize for a liquid crystal display, as taught by Satoh in order to illuminate LCD using LEDs containing R, G, and B colors (white light LED). In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify LED chips

containing R, G, and B colors as a one lamp, since it has been held that forming in one piece an article which has formerly been formed in several pieces and put together involves only routine skill in the art. Howard v. Detroit Stove Works, 150 U.S. 164 (1893).

Regarding claims 2 & 6 Kawano et al. in view of Satoh discloses the claimed invention, explained above. In addition, it is inherent that LED lamps has a luminescent area over 100 degrees.

Regarding claims 3, 4, 7 & 8 Kawano et al. in view of Satoh discloses the claimed invention, explained above. In addition, Kawano et al. discloses a tight fit between the lamps and the diffusion plate. It would have been obvious matter of design variation to disclose a specific intervals / distance between LEDs and the diffusion plate, since applicant has not disclosed that specific interval / distance solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well without the specific interval / distance.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mochizuki (USPN 6,386,720) – light source device and optical apparatus

Ohkawa (USPN 6,412,968) – surface light source device of side light type, liquid crystal display and light guide plate.

Natori (USPN 6,443,597) – plane display unit and plane display device

Muthu (USPN 6,411,046) – effective modeling of CIE XY coordinates for a plurality of LEDs for white LED light control.

Phillipps (USPN 6,335,817) – mirror controlled display device

Lee (USPN 6,241,363) – colored light mixing device

Ketchpel (USPN 5,396,406) – thin high efficiency illumination system for display device

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Y Choi whose telephone number is (703) 308-4792. The examiner can normally be reached on Monday-Friday (10:00-7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-7724.

JC
September 18, 2002

THOMAS M. SEMBER
PRIMARY EXAMINER

What is claimed is:

1. A backlight unit in a liquid crystal display including a light-guiding plate, a reflection plate, and a diffusion plate, the backlight unit using LED as a backlight lamp, the liquid crystal display following a field sequence,

wherein a plurality of lamps are arranged such that LED chips realizing R, G, and B colors are built in the respective lamps.

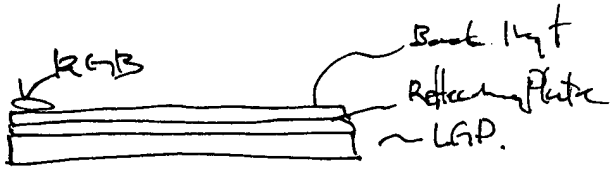
2. The backlight unit in a liquid crystal display of claim 1, wherein each of the lamps has a luminescent area over 100°.

3. The backlight unit in a liquid crystal display of claim 1, wherein each interval of the lamps lies within 10 mm.

4. The backlight unit in a liquid crystal display of claim 1, wherein a distance between the lamp and diffusion plate lies within 5 mm.

5. A backlight unit in a liquid crystal display including a light-guiding plate, a reflection plate, and a diffusion plate, the backlight unit using LED as a backlight lamp, the liquid crystal display following a field sequence,

wherein a plurality of chips are arranged such that LED chips realizing R, G, and B colors are built in the respective chips.



6. The backlight unit in a liquid crystal display of claim 5, wherein each of the chips has a luminescent area over 100°.

7. The backlight unit in a liquid crystal display of claim 5, wherein each interval of the chips lies within 10 mm.

8. The backlight unit in a liquid crystal display of claim 5, wherein a distance between the chip and diffusion plate lies within 5 mm.

9. A backlight unit in a liquid crystal display including a light-guiding plate, a reflection plate, and a diffusion plate, the backlight unit using LED as a backlight lamp, the liquid crystal display following a field sequence, the backlight unit further comprising:

a plurality of lamps arranged alternatively in a plurality of rows; and

three LED chips built in each of the lamps, the three LED chips realizing R, G, and B colors respectively,

wherein the lamps are turned on/off according to a sequence of a R chip, a G chip, and a B chip in each of the rows.

10. A backlight unit in a liquid crystal display including a light-guiding plate, a reflection plate, and a diffusion plate, the backlight unit using LED as a backlight lamp, the liquid crystal display following a field sequence, the backlight unit further comprising:

a plurality of chips arranged alternatively in a plurality of rows; and

three LED chips built in each of unit chips, the three LED chips realizing R, G, and B colors respectively,

wherein the unit chips are turned on/off according to a sequence of a R chip, a G chip, and a B chip in each of the rows.